

FIG. 1

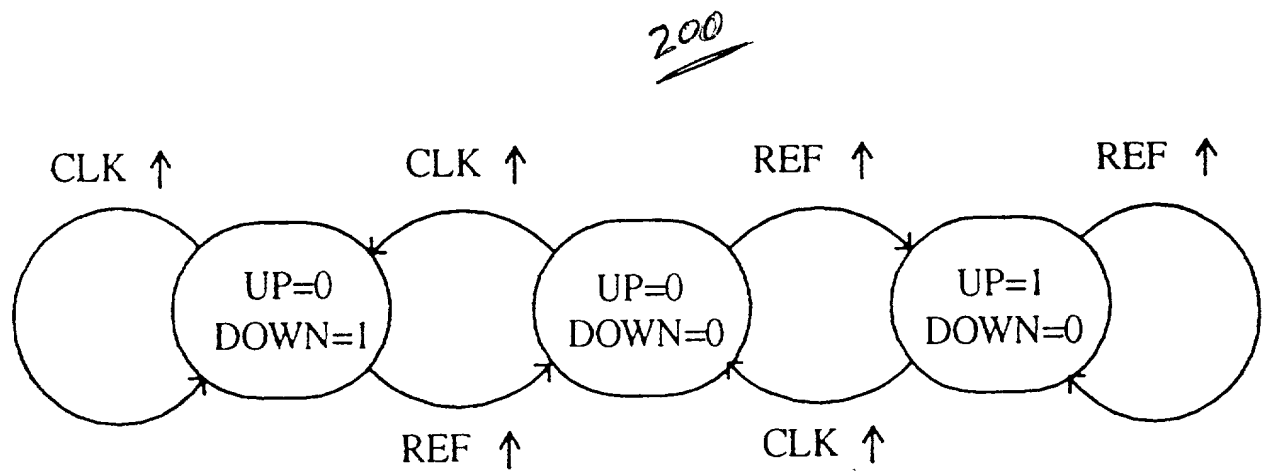


Fig. 2. PFD State Diagram

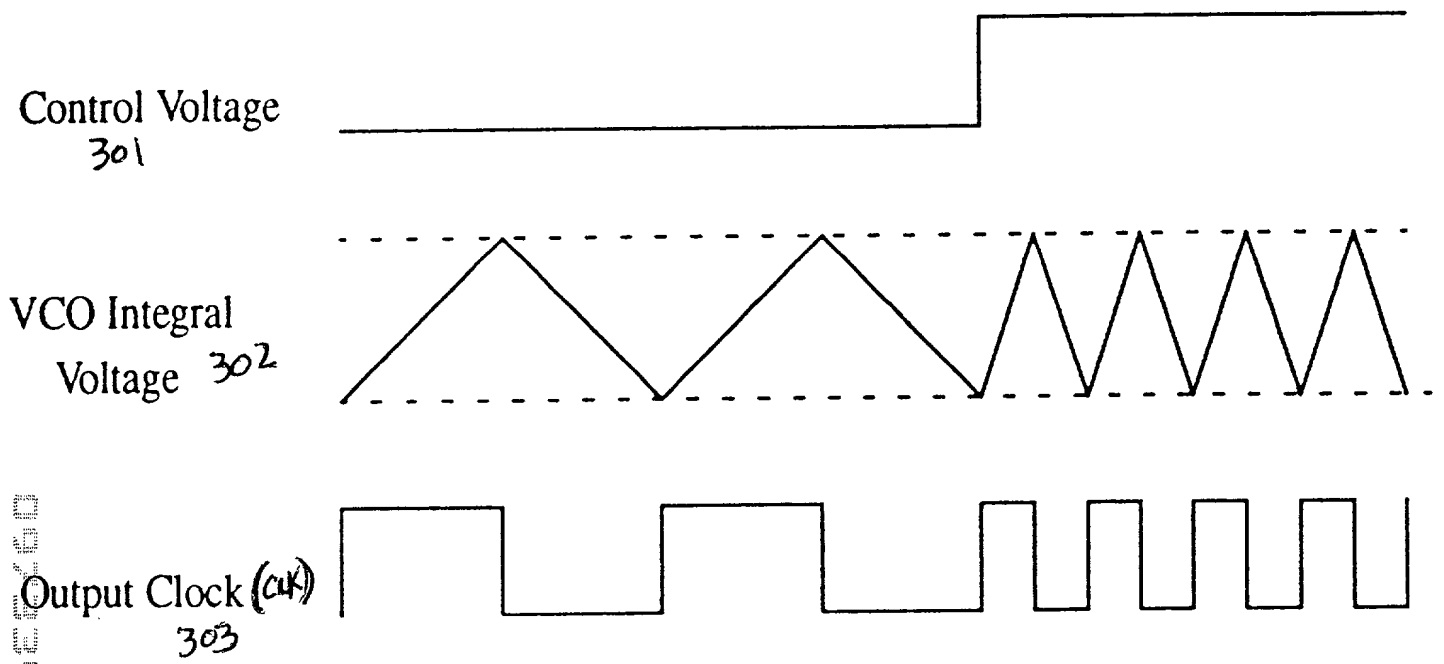
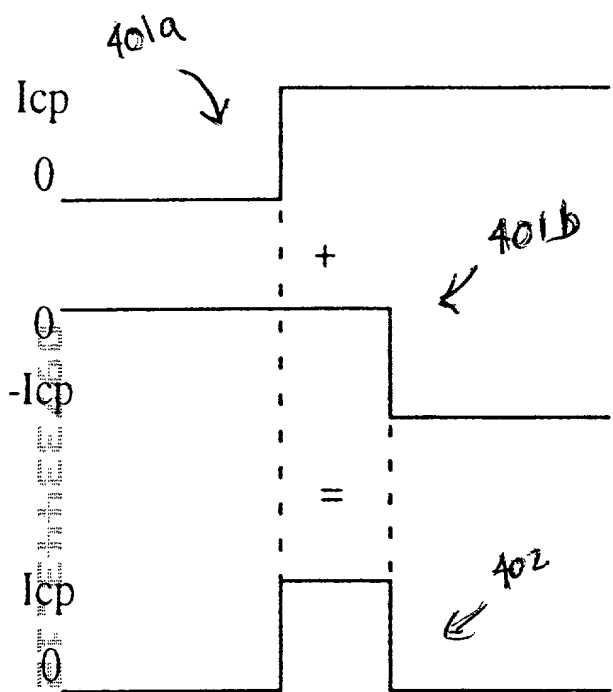


Fig. 3. VCO operation.

Charge Pump Current Pulse



Filter Voltage Response

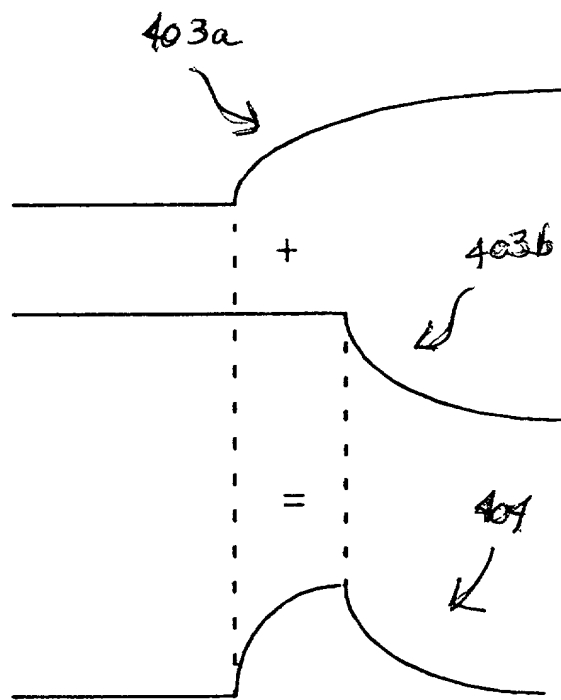


Fig. 4. Charge-Pump/Filter Model

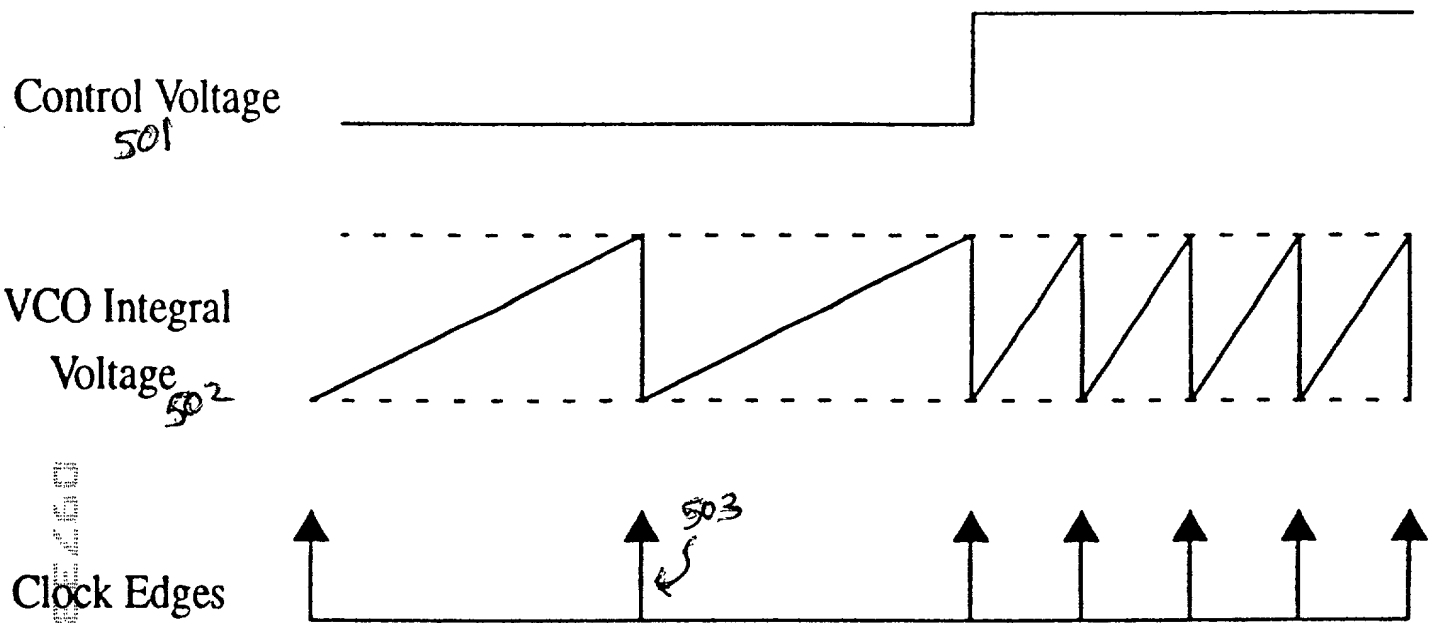


Fig. 5. Mathematical Representation of the VCO

Copyright © 2000 by John Wiley & Sons, Inc.

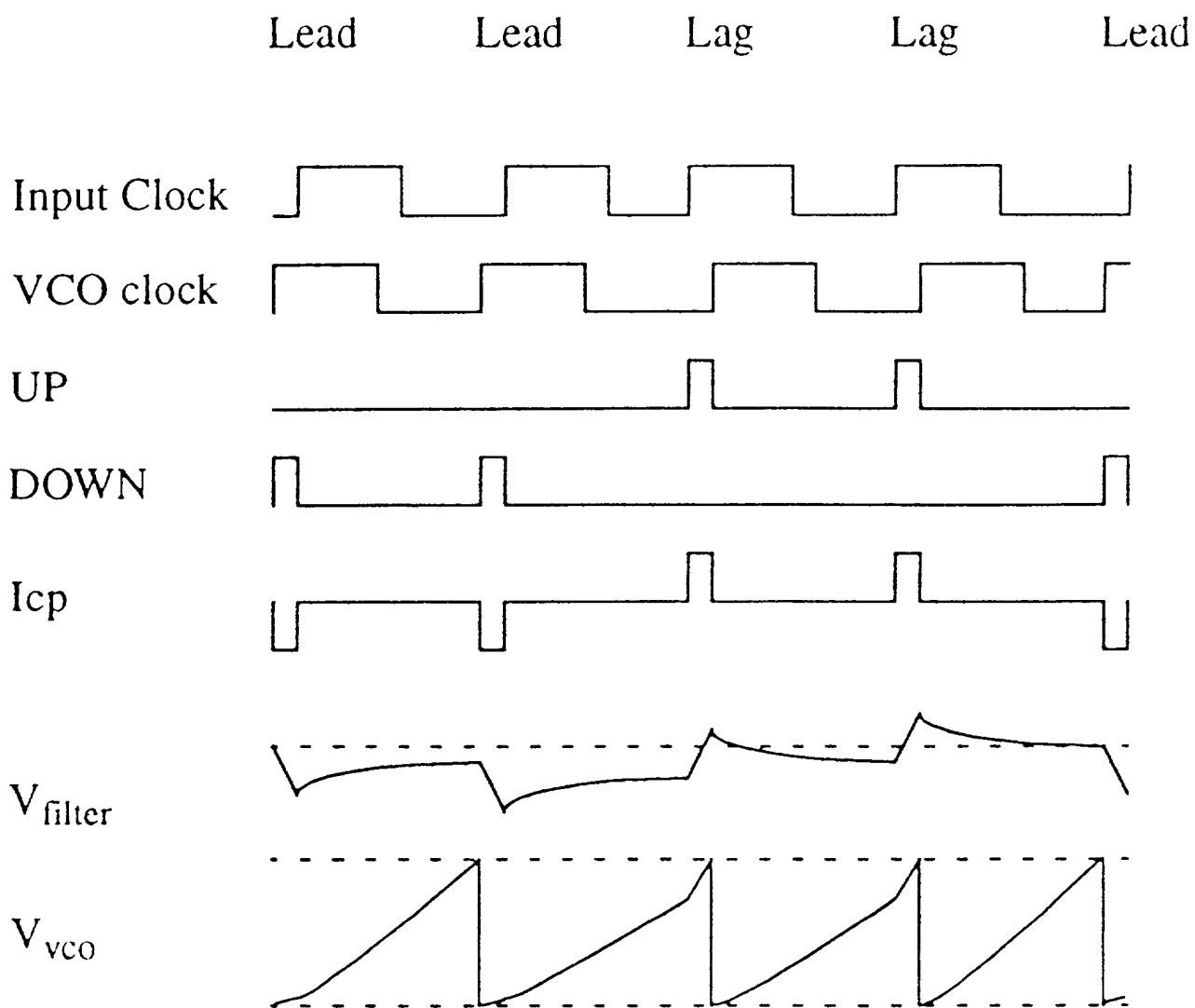
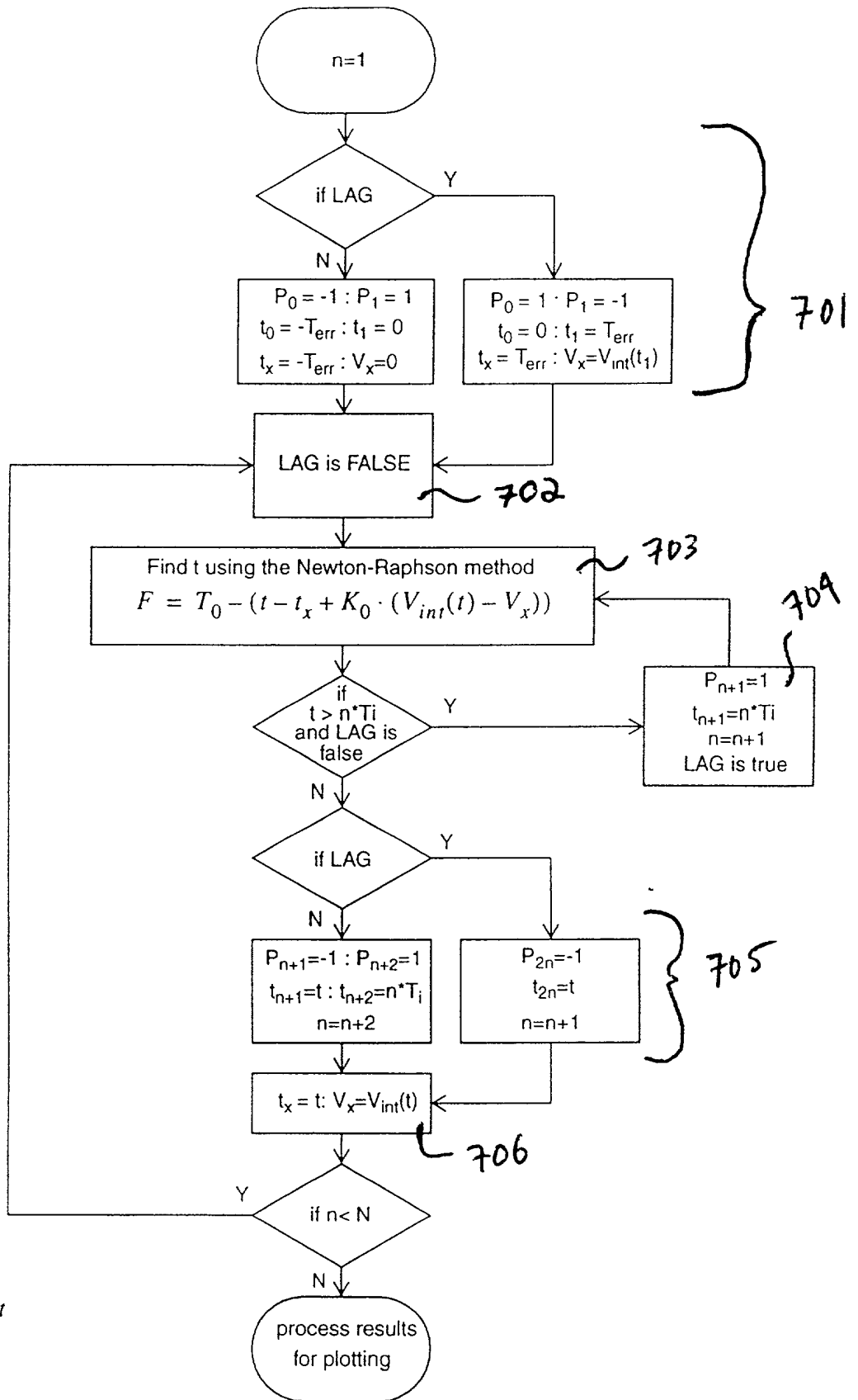


Fig. 6. PLL Operation

700



$$V_{int}(t) = \int_0^t V_{filt}(t) dt$$

$$V_{filt}(t) = V_0 + \sum_{k=1}^n P_k \cdot V_{step}(t - t_k)$$

Fig. 7. Model Flowchart

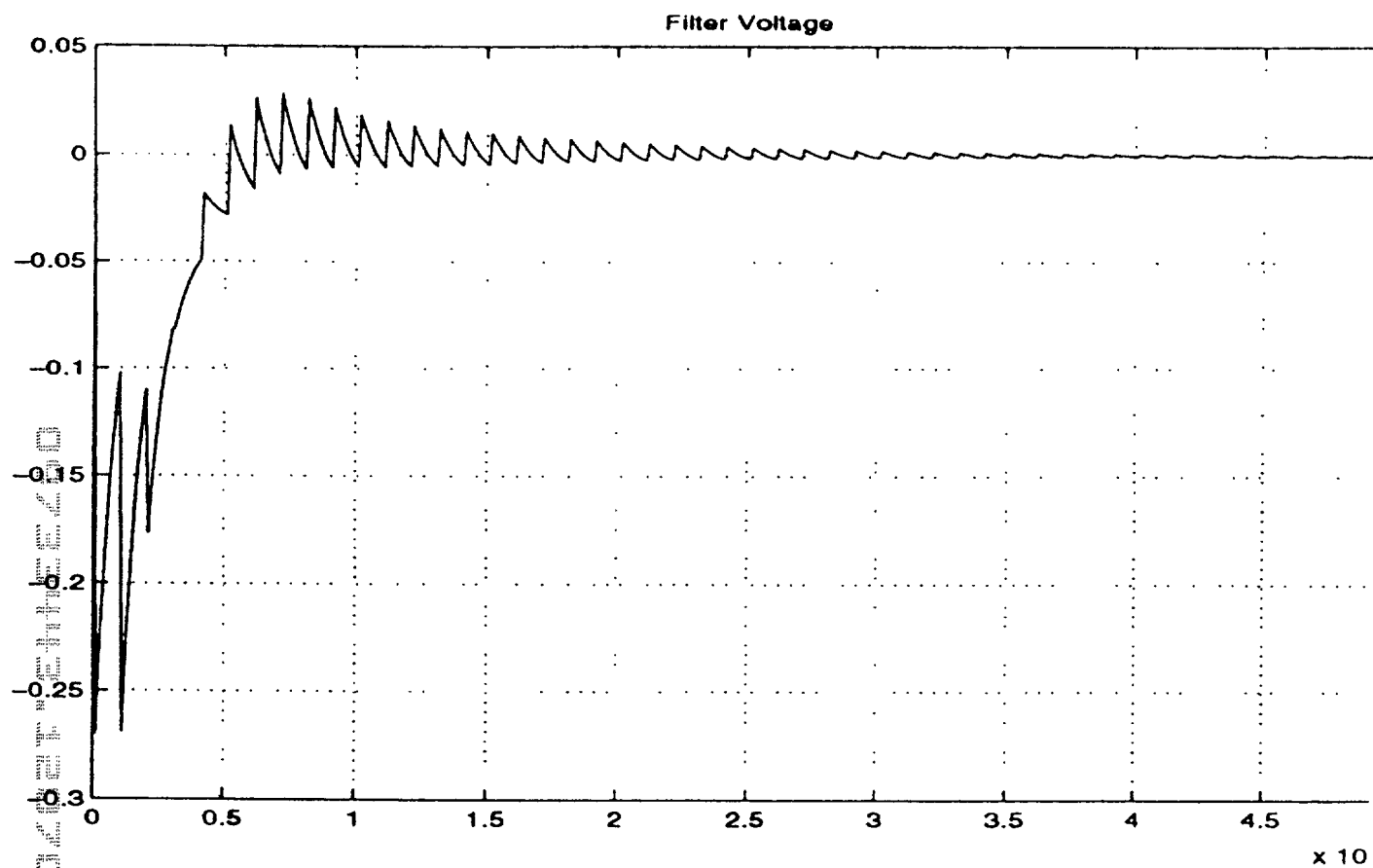


Fig 8. PLL Filter Voltage

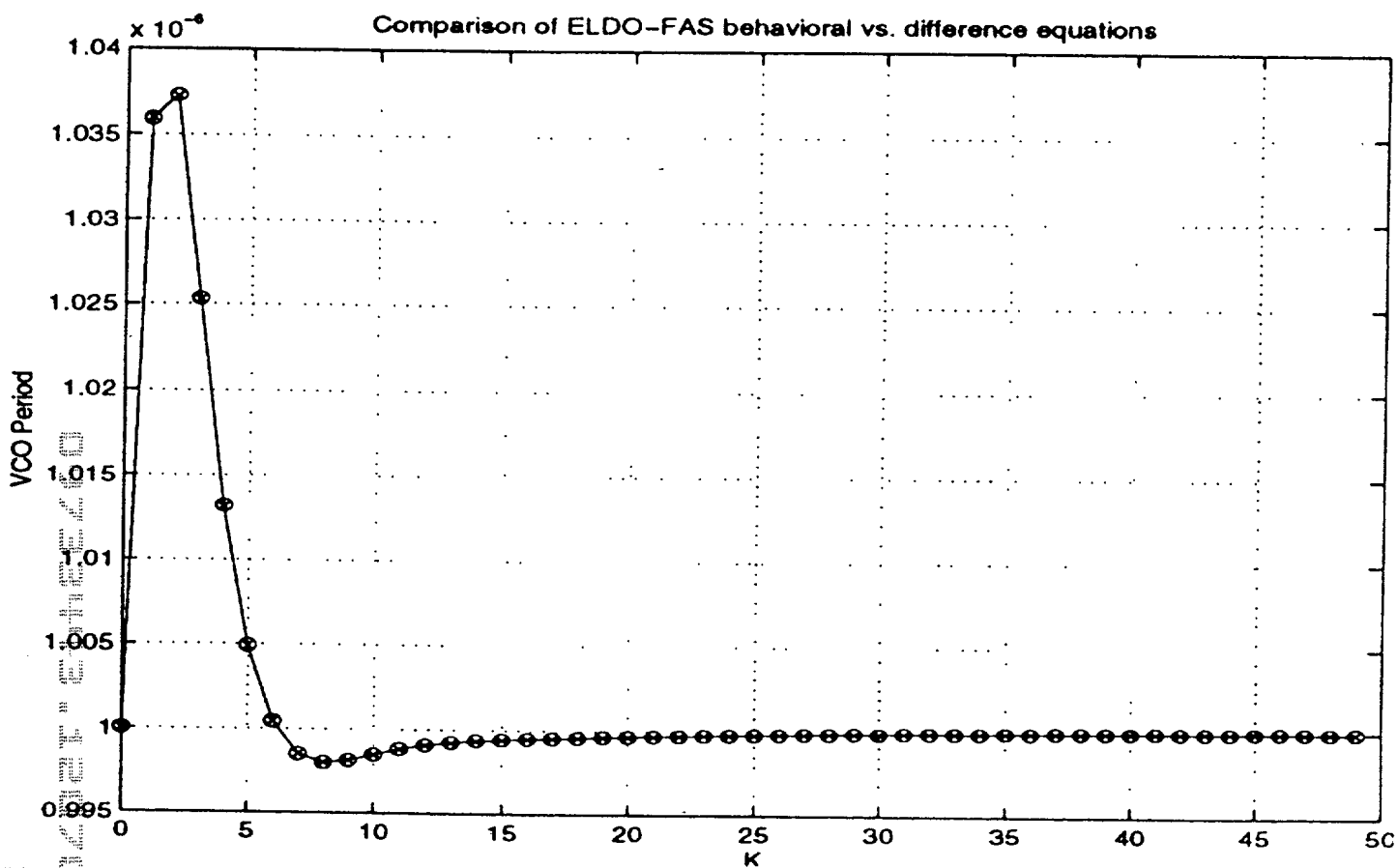


Fig 9. PLL Output Clock Period

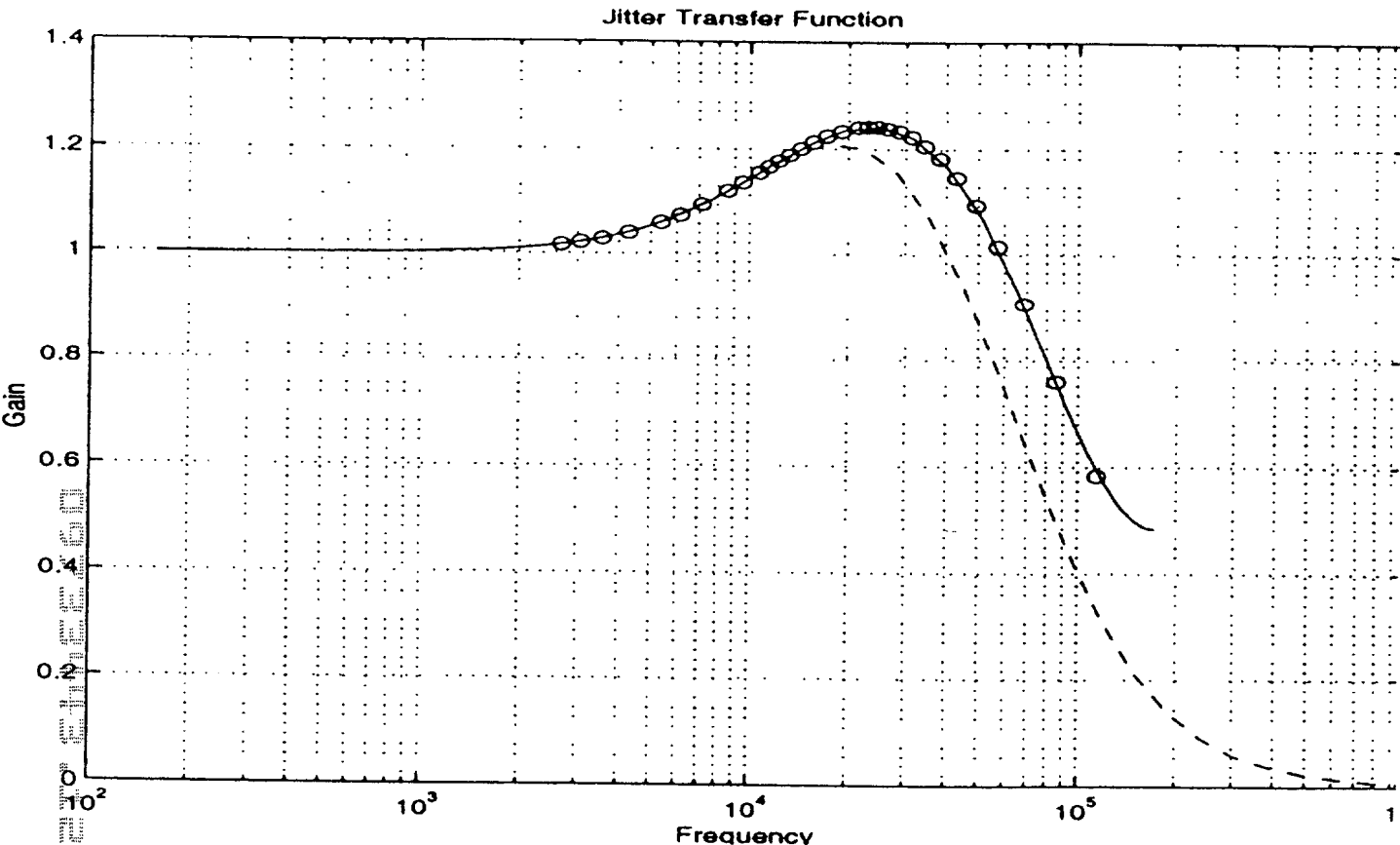


Fig 10. Bode Plot of Jitter Transfer Function

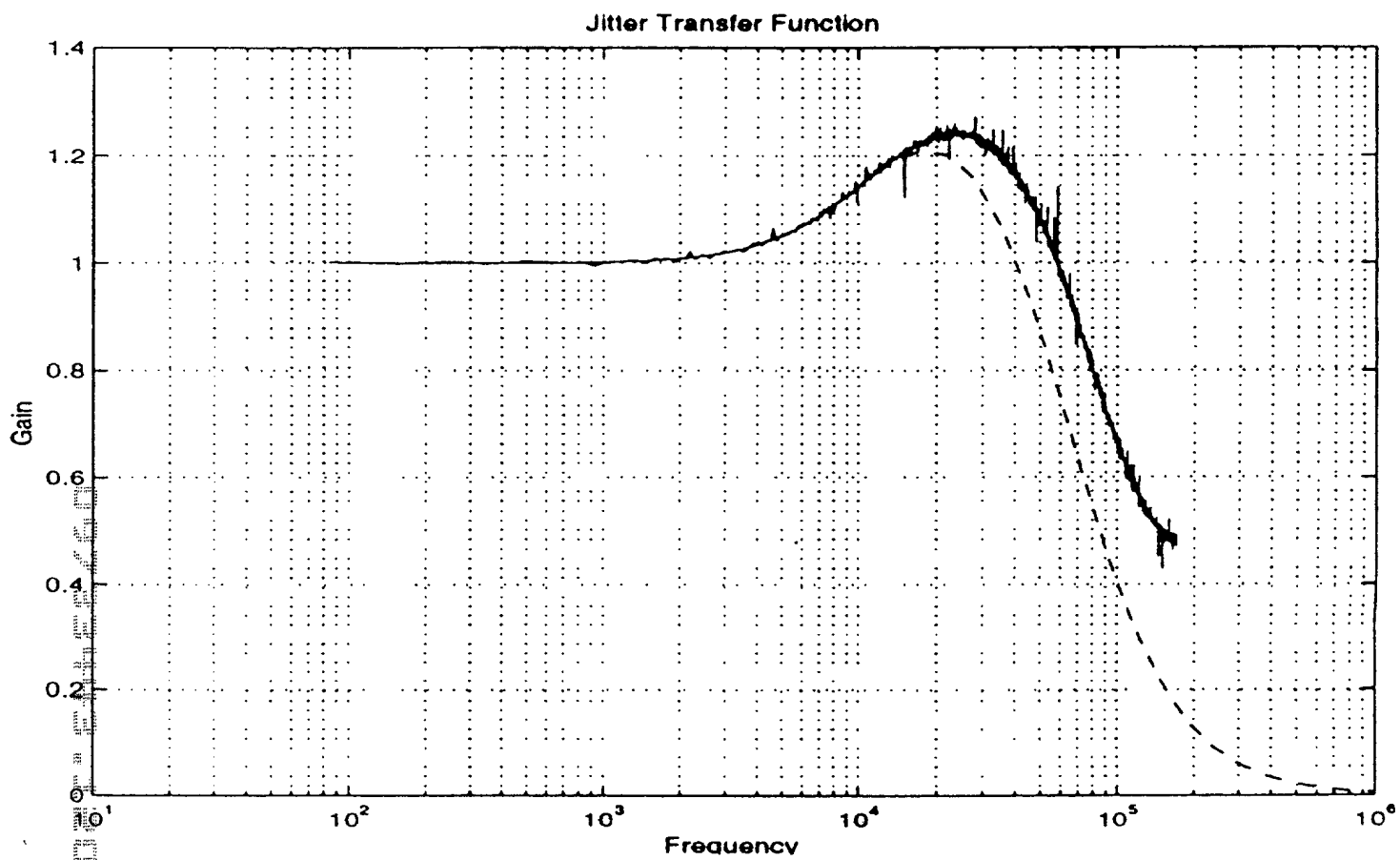


Fig 11. Bode Plot of Jitter Transfer Function

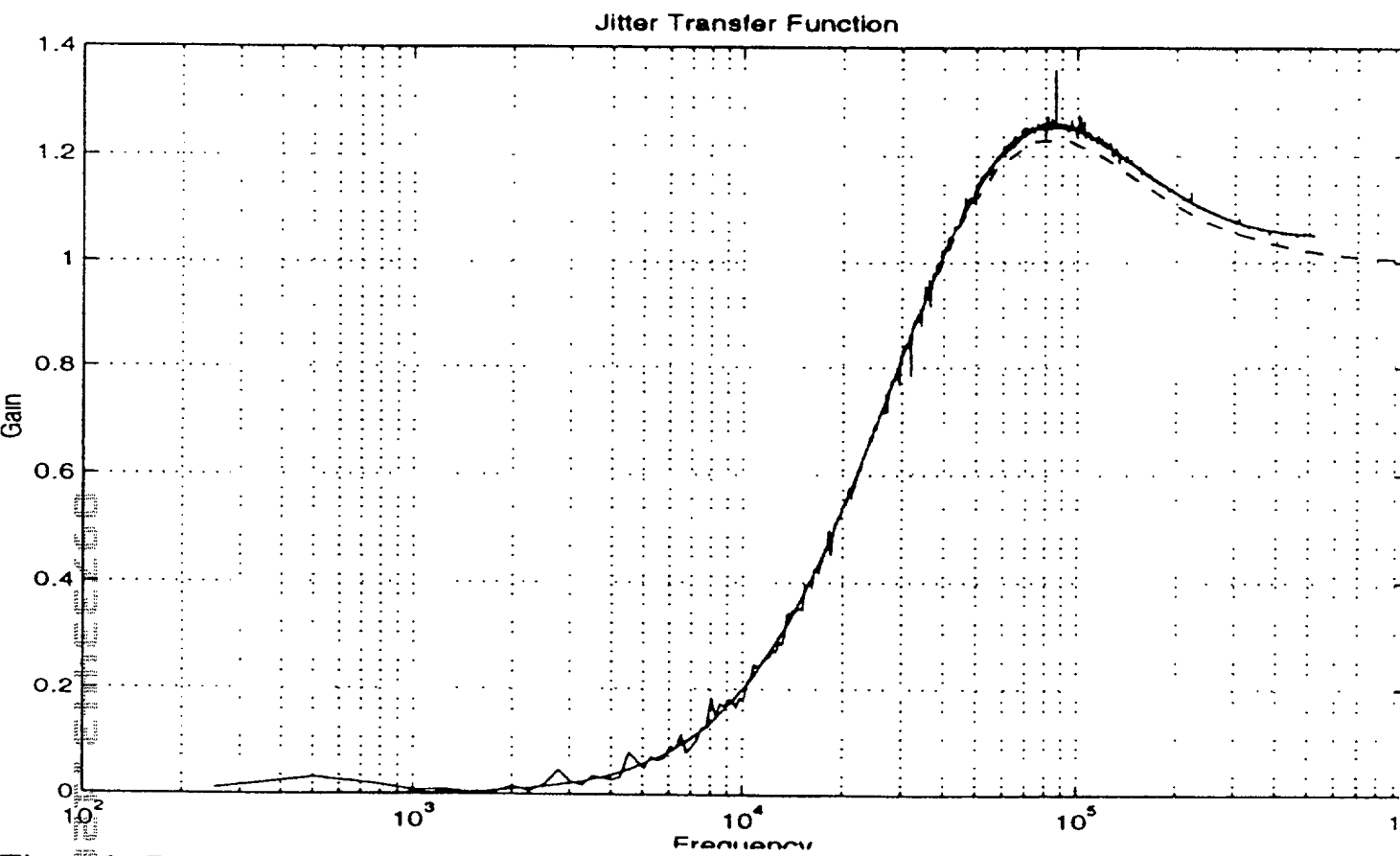
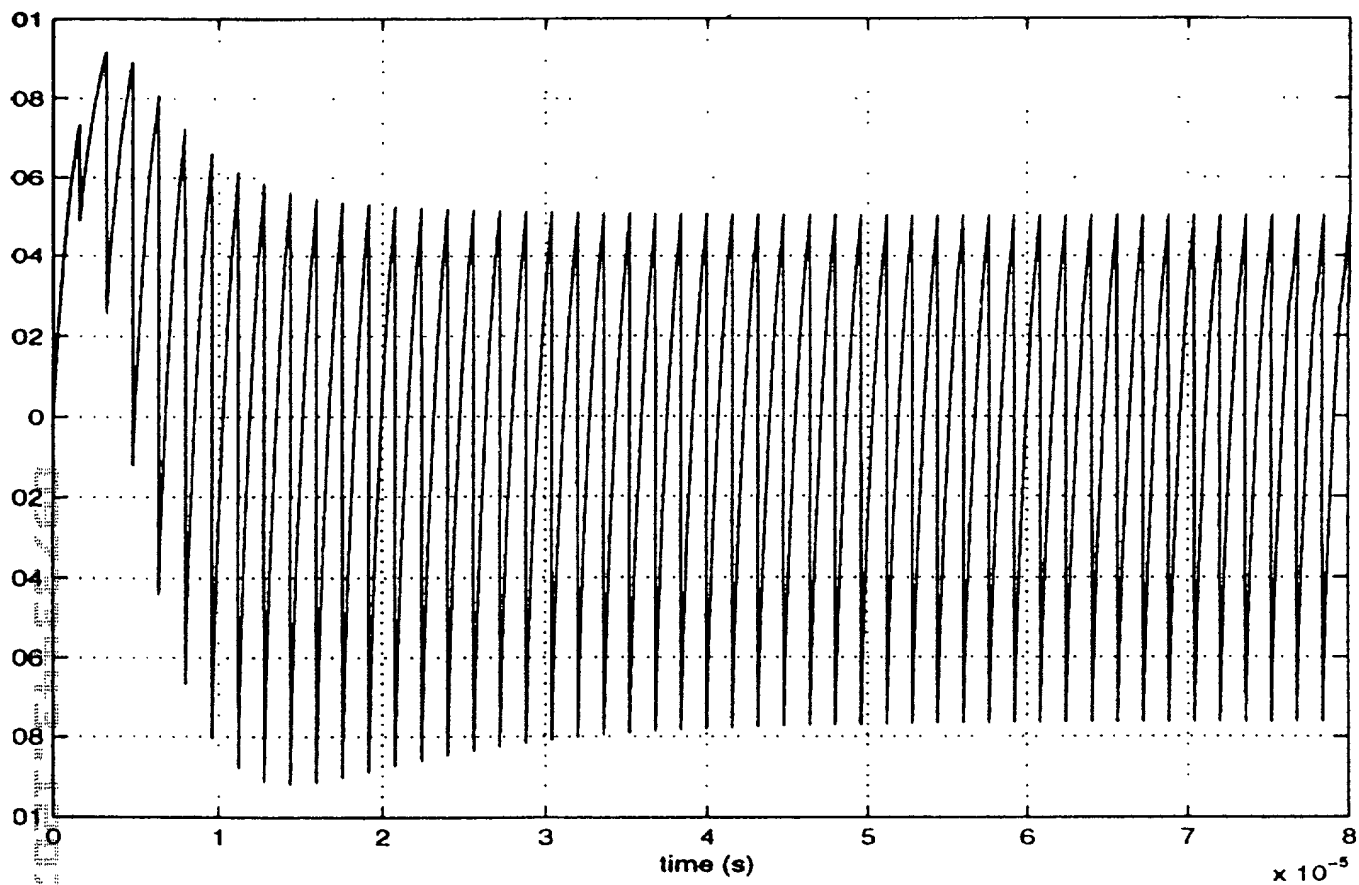


Fig. 12. Bode plot of VCO Transfer Function



Effect of Leakage on PLL Filter Voltage

FIGURE 13

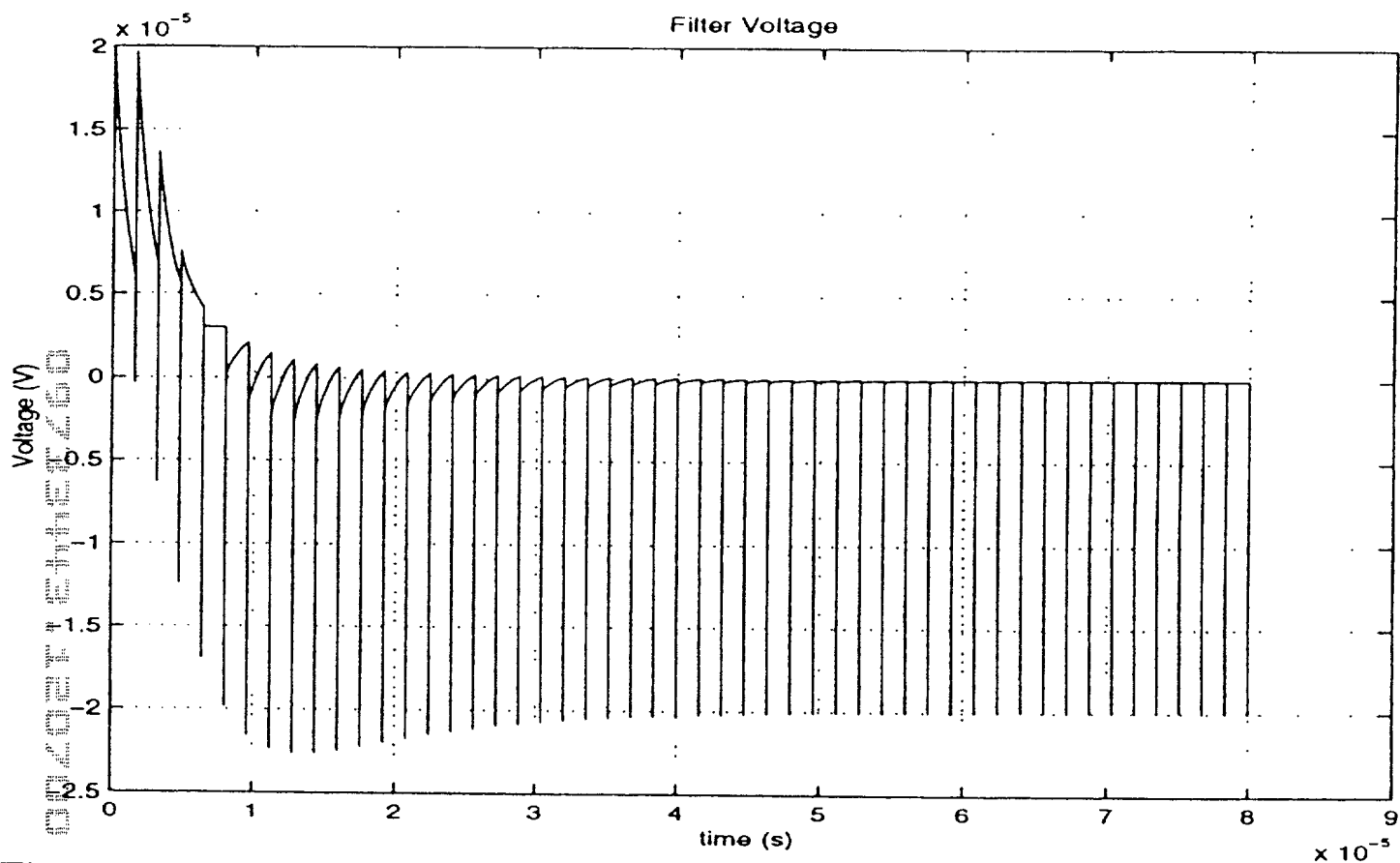


Fig. 14. Effect of Charge-Pump Mismatch on PLL Filter Voltage